

### **REMARKS**

Applicant amends claim 1, 3, 9, and 19 and cancels claim 8. No new matter is introduced by the amended claims, which are fully supported by the specification. Accordingly, Applicant respectfully requests examination of pending claims 1-3, 5-7, 9-19 and 21-29.

### **Claim Rejections Under 35 U.S.C. § 102(e)**

The Examiner rejected claims 1-2 and 5 under 35 U.S.C. § 102(e) as being anticipated by Fetterman et al. (U.S. Patent Application Publication No. 2003/0080766). Applicant respectfully traverses.

Independent claim 1 recites an apparatus to determine the critical length of a conductor such that the apparatus has at least one *device under test including a decoder and selection circuitry* for each device under test. Further, the claim recites at least one device under test that includes at least one test strip of a metal under test. The one test strip is formed from a series of segments of metal under test, wherein said metal strips of said segments are coupled together with segments of a connecting metal.

In contrast, Fetterman et al. discloses a test migration test structure 510 with additional circuitry for electrically controlled selection of the resistor. The selection circuitry is controlled by the first and second switching transistor selection and driver circuits (522 and 524). The circuits 522 and 524 of Figure 5 further illustrate that output nodes 518 and 520 provide input to the circuits 522 and 524 to shift by one tap, wherein the taps are indicated by  $T_0$  to  $T_{n+1}$ . However, the circuits 522 and 524 do not include decoder circuitry. The disclosure of shifting between taps does not include decoder circuitry for the device under test. Thus, the reference does not anticipate the claimed invention because the reference does not teach decoder and selection circuitry. Accordingly, Applicant respectfully requests the withdrawal of the 35 U.S.C. § 102(e) rejection and allowance of claims 1-2 and 5.

### **Claim Rejections Under 35 U.S.C. § 103(a)**

The Examiner also rejected claims 1-3, 5-19, and 21-29 under 35 U.S.C. § 103(a) as being unpatentable over Yamamoto (U.S. Patent No. 5,900,735), in view of Fetterman et al. Applicant respectfully traverses.

The Office offers Yamamoto in combination with Fetterman to propose an apparatus to *determine the critical length of a conductor* such that the apparatus has at least one device under test including a decoder and selection circuitry for each device under test. However, Fetterman does not disclose a decoder and selection circuitry. Further, Yamamoto discloses hole-to-hole spacings connected by interconnect wires. The interconnect wires and spacing define a test structure for *evaluating the reliability of the interconnect wires*. Specifically, the evaluation tests for electromigration failure, which the reference discloses as a typical predetermined failure mode. Yamamoto further discloses that each of the spacings are set under a limitation such that each of the spacings is not less than five times a critical interconnect wire length, or Blech length. Setting the limitation to the Blech length is the “primary feature of the present invention.” Column 7, lines 23-24. Yamamoto discloses the use of the Blech length for seven embodiments of the invention. The reference further discloses that the length of the interconnect wires can change, but that it is necessary to set the spacings to not less than five times the critical interconnect wire length.

What Yamamoto does not disclose is how to determine the critical length of the interconnect wires. Specifically, claim 1 of Yamamoto recites “wherein a center-to-center distance between adjacent holes of said plurality of holes is not less than x times a Blech length.” The remaining claims recite lengths not exceeding the Blech length. However, the reference never discloses how to determine the critical/Blech length. In contrast, Applicant’s independent claims recite how to determine the critical length of a conductor. For example, a device under test includes metal test strips and a decoder and selection circuitry to receive a signal, wherein *an output signal from the device under test determines the critical length of the conductor*.

Thus, Yamamoto, which does not teach or suggest how to determine critical length of conductors, cannot be combined with Fetterman, which does not teach a decoder and selection circuitry for testing metal strips coupled together with segments of a connecting metal, to render obvious Applicant’s claimed invention. Thus, Applicant respectfully requests the withdrawal of the 35 U.S.C. § 103(a) rejection and the allowance of claims 1-3, 5-7, 9-19 and 21-29.

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Non-Final Office Action mailed 3/3/04.  
Response to Non-Final Office Action mailed 6/3/04.

Applicant respectfully requests a Notice of Allowance based on the foregoing remarks. If the Examiner has any questions concerning the present amendment, the Examiner is kindly requested to contact the undersigned at (408) 749-6900. If any other fees are due in connection with filing this amendment, the Commissioner is also authorized to charge Deposit Account No. 50-0805 (Order No. SUNMP308). A copy of the transmittal is enclosed for this purpose.

Respectfully submitted,  
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